In the Claims:

Claim 1. (Currently Amended) A packet receiving method for use on a packet-switching network for handling each received packet, comprising the steps of:

allocating a descriptor and a data buffer, the descriptor for recording a link status between the descriptor and the data buffer and a reception status of a packet, and the data buffer for storing the packet, and the size of the data buffer being fixed;

activating an early interrupt mode and setting a ~~threshold~~ logical segmentation size value;

dividing the data buffer by the ~~threshold~~ logical segmentation size value into a plurality of segments, and setting an early receiving interrupt signal and a ready interrupt signal according to the ~~threshold~~ logical segmentation size value;

in response to the early receiving interrupt signal, reading a part of the packet stored in the data buffer; and

in response to the ready interrupt signal, retrieving and forwarding a ~~the remained~~ remaining part of packet stored in the data buffer ~~data~~.

Claim 2. (Currently Amended) The method of claim 1, further comprising the step of: performing a write-back operation on the descriptor after ~~all~~ the whole packet ~~data~~ stored in the data buffer ~~have~~ has been forwarded so as to reset the descriptor.

Claim 3. (Currently Amended) The method of claim 1, further comprising the step of: asserting the ready interrupt signal~~,~~ when the whole packet has completely been moved to the data buffer.

Claim 4. (Currently Amended) The method of claim 1, further comprising the step of: asserting the early receiving interrupt signal~~,~~ when a data amount of the packet already moved into the data buffer ~~excesses~~ exceeds the segment ~~threshold value~~.

Claim 5. (Original) The method of claim 1, wherein the packet-switching network is Ethernet.

Claim 6. (Currently Amended) A packet receiving apparatus, comprising:

a descriptor for handling a packet;

a data buffer linked to the descriptor for storing the packet, wherein the data buffer has a fixed size and is partitioned into a plurality of segments, with each dividing point being linked to an early receiving interrupt signal and the end of the packet being linked to a ready interrupt signal; and

a controller for receiving the packet, when the controller has moved a specified length of the packet above a ~~threshold~~ logical segmentation size value to the data buffer, asserting ~~an~~ the early receiving interrupt signal; when the controller has completely moved the whole packet to the data buffer, asserting ~~a~~ the ready interrupt signal;

in response to the early receiving interrupt signal, starting to read the packet stored in the data buffer; and in response to the ready interrupt signal, retrieving and forwarding the remaining ~~remained~~ packet ~~data~~ stored in the data buffer.

Claim 7. (Currently Amended) The packet receiving apparatus of claim 6, wherein the controller ~~performing~~ performs a write-back operation on the descriptor after ~~all~~ the whole packet ~~data~~ stored in the data buffer ~~have~~ has been forwarded so as to reset the descriptor.

Claim 8. (Currently Amended) A packet receiving method for use on a packet-switching network for handling ~~each~~ a plurality of received packets, comprising the steps of:

allocating one descriptor and ~~one~~ a corresponding data buffer, the descriptor for recording a link status between the descriptor and the data buffer and a reception status of a packet, and the data buffer for storing the packet;

setting a ~~threshold~~ logical segmentation size value and dividing the buffer into several segments according to the logical segmentation size;

determining whether the packet has completely been received;

if No:

asserting an early receiving interrupt signal, when a length of the packet above the ~~threshold~~ logical segmentation size value has been moved to the data buffer;

checking the reception status of the packet in response to the early receiving interrupt signal;

retrieving a part of the packet stored in the data buffer when the reception status of the packet indicates that the packet has not completely been moved to the data buffer; and

retrieving a remaining part of ~~remained~~ the packet ~~data~~ stored in the data buffer when the reception status of the packet indicates that the whole packet has completely been moved to the data buffer; and

if YES:

asserting a ready interrupt signal and performing a write-back operation on the descriptor so as to reset the reception status of the packet when the whole packet has completely been moved to the data buffer; and

retrieving the ~~remained~~ remaining part of the packet ~~data~~ in response to the ready interrupt signal.

Claim 9. (Original) The method of claim 8, wherein the packet-switching network is Ethernet.

Claim 10. (New) A method for processing packet, comprising the steps of:

allocating a plurality of descriptors and a plurality of data buffers, each said descriptor corresponding to one and only one said data buffer for receiving one and only one said packet at the same time, wherein each said descriptor records a reception status of one said packet and a link status between said descriptor and one corresponding said data buffer, wherein each said data buffer is used to store one said packet, wherein each said data buffer has a fixed size; and

processing said packets by said descriptors and said data buffers, the steps of processing each said packet by one said descriptor and one said data buffer comprising the steps of:

setting a logical segmentation size value;

dividing said data buffer by said logical segmentation size value into a plurality of segments in according to said logical segmentation size value;

receiving at least partial a packet and storing the received part of said packet in said data buffer; and

outputting at least a portion of said packet from said buffer in the unit of said segments.

Claim 11. (New) The method of claim 10, an early receiving interrupt signal being asserting when the received part of said packet exceeds one said segment, said early receiving interrupt signal being used to noticing that there is enough received part of said packet to be output.

Claim 12. (New) The method of claim 10, stored part of said packet being outputted whenever the stored amount avails a segment.

Claim 13. (New) The method of claim 10, said packets being received through a network card and said data buffer at least being a portion of a system memory of a host computer wherein said network card is located.

Claim 14. (New) The method of claim 10, the size of each said data buffer being the maximized value of each said packet.

Claim 15. (New) The method of claim 10, further comprising the step of adjusting said logical segmentation size value.

Claim 16. (New) An apparatus for processing packet, comprising:

a plurality of descriptor for handling a plurality of packets, wherein each said descriptor handles one and only one said packet at the same time;

a plurality of data buffers for storing said packets, wherein each said data buffer has a fixed size and is linked to one and only one said descriptor; and

a controller for controlling said descriptors and said data buffers, wherein said controller divides each said data buffer into a plurality of segments in according a logical segmentation size value, wherein said controller control each of said descriptors to receive at least a part of one said packet and to store said date buffer in one and only one corresponding said data buffer, said controllers also control each said descriptor to output at least a portion of said packet from corresponding said buffer in the unit of said segments.

Claim 17. (New) The apparatus of claim 16, an early receiving interrupt signal being asserting by said controller when the received part of said packet in one said data buffer exceeds one said segment, said early receiving interrupt signal being used to noticing that there is enough received part of said packet to be output.

Claim 18. (New) The apparatus of claim 16, stored part of one said packet being outputted whenever the stored amount avails a segment.

Claim 19. (New) The apparatus of claim 16, said descriptors and said data buffers being connected to a network card for receiving said packet, and said data buffer at least being a portion of a system memory of a host computer wherein said network card is located.

Claim 20. (New) The apparatus of claim 16, the size of each said data buffer being the maximized value of each said packet, and said logical segmentation size value being adjustable.